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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/574,920

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Kun'ichi Miyazawa

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EXAMINER

QIAN, YUN

ART UNIT

PAPER NUMBER

1793

NOTIFICATION DATE

DELIVERY MODE

02/19/2010

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/574,920	Applicant(s) MIYAZAWA ET AL.	
	Examiner YUN QIAN	Art Unit 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 December 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2,6,8 and 9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2,6,8 and 9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 April 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Status of Claims

Claims 2, 6 and 8-9 remain for examination. Claims 2, 6, 8-9 are amended.

Claims 1, 3-5 and 7 are canceled.

Note on the Grounds of Rejection

Regarding claims 2, 4 and 6-9, the rejection under 35 U.S.C.103 (a) as being unpatentable over Miyazawa et al (US 2002/0192143) in view of Beck et al. (Russian Chemical Bulletin, Vol. 45, No. 8, 2129-2130 (1996)), further in view of Miyazawa, Masuno and Suga (Electron Microscopy, June, 2003, Vol. 38, Supplement 1, p 160) stands.

In the light of the amendment, the rejection under 35 U.S.C.103 (a) as being unpatentable over Miyazawa et al (US 2002/0192143) and Beck et al. (Russian Chemical Bulletin, Vol. 45, No. 8, 2129-2130 (1996)), further in view of Guldi et al. (Langmuir 2000, 16, 1311-1318) with respect to claims 2, 4 and 6-9 has been withdrawn, because claim 6 has been amended to include limitation of "a diethyl ester malonate derivation of C₆₀", among them claims 4 and 7 are cancelled.

In this office action, the ground(s) rejection has been modified to address the currently amended claims and those directly or indirectly dependant thereon. The rejection is substantially the same as generally set in the office action mailed on June 8, 2009.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 2, 6 and 8-9 are rejected under 35 U.S.C.103 (a) as being unpatentable over Miyazawa et al (US 2002/0192143) in view of Beck et al. (Russian Chemical

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Bulletin, Vol. 45, No. 8, 2129-2130 (1996)), further in view of Miyazawa, Masuno and Suga (Electron Microscopy, June, 2003, Vol. 38, Supplement 1, p 160).

Miyazawa et al. discloses a method of making a fine carbon wire needle crystal of fullerene by adding a solution of iodine/isopropyl alcohol to a solution of C₆₀ in toluene ([0262]-[0266] and claim 1).

The products made according to the process taught by Miyazawa composing a mixture of fullerene derivative and C₆₀ fullerene as the instant claim 2, as evidenced by Beck et al (fullerene C₆₀ forms a weak molecular complex with iodine. Its stability constant is $<0.1 \text{ L}^{-1} \text{ mol}^{-1}$) (abstract).

However, Miyazawa '143 does not specifically teach a diethyl malonate of fullerene derivative as per applicant claim 2.

Miyazawa, Masuno and Suga disclose a process to make single crystal fullerene nano-whiskers of C₆₀ malonic acid diethyl ester derivate C₆₀[C(COOC₂H₅)₂] (abstract).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to make fullerene and fullerene derivatives (such as single crystal fullerene nano-whiskers of C₆₀ malonic acid diethyl ester derivate), motivated by the fact that the resulting fullerene derivatives have smooth surfaces and conduct high resolution (abstract).

Regarding claim 6, Miyazawa '143 teaches a production process for making fullerene and fullerene derivative comprising steps of (1) putting together a solution containing the fullerene dissolved in a first solvent with a second solvent having less solvency for the fullerene than the first solvent; (2) forming a liquid-liquid interface

between the solution and the second solvent; (3) depositing a fine carbon wire at the liquid-liquid (claims 8-19). It meets the recited claimed limitations.

Regarding claim 8, the first solvent taught by Miyazawa et al. is a hydrocarbon solvent including toluene etc. as per applicant claim 8 (claim 12).

Regarding claim 9, the second solvent taught by Miyazawa et al. is an alcohol solvent such as butyl alcohol as per applicant claim 9 (claims 14 and 15).

Response to Arguments

With regards to the previous Grounds of Rejection

Applicant's Remarks filed on December 8, 2009 are acknowledged.

Applicant's arguments with respect to claims 2, 6 and 8-9 have been considered but are not persuasive. The examiner would like to take this opportunity to address the Applicant's arguments.

In response to applicant's argument that a diethyl ester malonate derivative of C₆₀ taught by Miyazawa, Masuno and Suga and can not fit into the hole of the C₆₀ nano-whiskers (Remarks, pages 3-4), the examiner respectfully submits since the references, as combined, teach all of the claimed reagents (C₆₀, diethyl ester malonate, toluene, isopropyl alcohol) and composition, as well as the process conditions, the physical properties of composition (a single crystal fullerene nano-whiskers of C₆₀ malonic acid diethyl ester derivate C₆₀[C(COOC₂H₅)₂] and fullerene) would necessarily follow as set forth in MPEP 2112.01(II).¹

¹ "Products of identical chemical composition can not have mutually exclusive properties." A chemical composition and its properties are inseparable. Therefore, if the prior art teaches the identical chemical structure, the properties applicant discloses and/or claims are necessarily present. In re Spada, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to YUN QIAN whose telephone number is (571)270-5834. The examiner can normally be reached on Monday-Thursday, 10:00am -4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Melvin Curtis Mayes can be reached on 571-272-1234. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

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Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/YUN QIAN/
Examiner, Art Unit 1793

February 10, 2010

/Melvin Curtis Mayes/
Supervisory Patent Examiner, Art Unit 1793